

North Dakota Ambulance Service

2.2.0 Baseline Care Standards - Pediatric Paramedic

The assessment of the pediatric patient will vary with the age of the patient. However, there are some components that are for all ages. The following actions will be taken on each ambulance call. Once a specific patient condition is determined by the EMS provider, he or she will treat that condition according to specific protocols.

Scene Size-up

1. Review the dispatch information.
2. BSI PRN.
3. Make sure scene is safe.
4. Determine mechanism of injury.
5. Determine number and location of patients.
6. Request additional resources if needed.

Primary Assessment

The primary care provider must conduct a primary assessment for each patient to determine any life-threatening injuries or conditions. Any life-threatening conditions must be addressed immediately per specific protocol.

Secondary Assessment

A detailed secondary assessment must be performed after the primary assessment is complete and any life-threatening conditions are addressed.

Standard care

A Broselow Tape will be used and all pediatric patients will receive the following:

1. Airway, oxygen therapy, and breathing per the Airway Management protocol.
2. If there is any possibility of medication administration or the need for fluid resuscitation, establish an IV of Normal Saline TKO.
3. Monitor ECG and O₂ saturations.
4. At least two sets of vital signs must be recorded or vital signs every 15 minutes. If the patient is unstable, vital signs must be recorded every 5 minutes. Vital signs include:
 - Mental Status (AVPU)
 - Blood Pressure
 - Pulse
 - Respirations
 - Circulation/Motor/Sensory (CMS) in all four extremities
5. Treat specific conditions according to protocol.
6. Consider Air Transport when necessary and if available.
7. Call the receiving hospital by radio or cell phone and give a report describing the patient's condition.

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2.2.0 Pain Management - Pediatric Paramedic

Objective: Provide a reasonable relief of severe pain to make packaging and transport more tolerable to the patient; both the medical provider and patient need to understand that complete relief of pain in most conditions is not possible. The goal is to ease severe pain while maintaining the patient's level of consciousness and respiratory status.

1. Baseline care standards.
2. First attempt to manage all painful conditions with basic care: Splint extremity injuries. Place the patient in a position of comfort.
3. Administer O₂ 15L per minute via mask.
4. Monitor ECG and O₂ saturations.
5. For patients over 5 years of age that have severe pain, and do not have a decreased level of consciousness, and who are hemodynamically stable, and with oxygen saturations above 94% administer:
 - *Morphine 0.1 mg/kg IV not to exceed 1mg/minute* until reasonable pain relief to a maximum dose of 10 mg.
6. The patient must have vital signs taken prior to each dose and be monitored closely. If at any time there is a decreased level of consciousness, a decrease in oxygen saturation below 92%, or blood pressure drops to 100 mmHg or less, administration of narcotic medication must stop.
7. For any dosages outside of protocol, **verbal** orders must be obtained from medical control.

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2.2.0 Suspected Child Abuse

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The following signs or symptoms indicate that a child's safety may be at risk and at the very least, the situation should be assessed by a physician able to determine the causes of these symptoms and offer the help and assistance necessary to reduce the risk to the child.

Physical indicators:

- Unexplained bruises or welts including those in the shape of an instrument, electric cord, belt buckle, etc.
- Numerous bruises in various stages of healing.
- Cigarette burns, especially on palms, soles, or buttocks.
- A sign of immersion burns producing sock or glove type markings on hands, feet, or the buttocks.
- Rope burns.
- Infected burns (indicating delay in treatment).
- Torn, stained or bloody underclothes.
- Bleeding, irritation or pain of the genitals.
- Poor hygiene, including lice, scabies, severe or untreated diaper rash, bedsores, body odor, etc.

Behavioral indicators:

- Inappropriate or excessive fear of parent or caretaker.
 - Unbelievable or inconsistent explanation for injuries.
 - Flat or bald spots on head (infants).
 - Nervous disorders (rashes, hives, stomach aches, facial tics).
 - Age-inappropriate behaviors (bedwetting, wetting or soiling).
 - Parents who refuse treatment or transport of suspicious injuries.
1. Present a calm care giving manner.
 2. Treat injuries according to specific protocol.
 3. Do not suggest that injuries are suspicious in any manner.
 4. Transport when possible. Report to the accepting facility in a discreet manner.
 5. Notify your local Social Service Office, law enforcement, and medical control for any suspected cases when transport was denied by parents.

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6. Treat medical or trauma conditions per protocol.
7. Document the following on the trip report:
 - Who the incident was reported to, and
 - When the incident was reported, and
 - Where the incident was reported

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2.2.1 Airway Management-Pediatric Paramedic

Treatment goals in airway management of a patient in the pre-hospital environment include ensuring adequate oxygenation and safe, timely transport to the appropriate care facility.

1. Baseline care standards.
2. Place patient in position of comfort and reassure.
3. Maintain cervical spine control on patients with suspected trauma.
4. Auscultate with stethoscope at least four different areas of the chest and document.
5. If spontaneous breathing is present without compromise:
 - Monitor breathing during transport.
 - Administer oxygen PRN:
 - Infants via infant mask @ 2 – 4 L per minute
 - Small child (1 – 8 years) via pediatric mask @ 6 – 8 L per minute.
 - Older child (9 – 15 years) via non-rebreather @ 15 L per minute.
 - If mask is not tolerated, administer via blow-by method.
6. If spontaneous breathing is present with compromise:
 - Manually open airway.
 - Suction PRN.
 - Administer oxygen PRN:
 - Infants via infant mask @ 2 – 4 L per minute
 - Small child (1 – 8 years) via pediatric mask @ 6 – 8 L per minute.
 - Older child (9 – 15 years) via non-rebreather @ 15 L per minute.
 - If mask is not tolerated, administer via blow-by method.
 - If unable to maintain airway, insert oropharyngeal or nasopharyngeal airway PRN.
 - Assist ventilations with BVM.
 - Monitor O₂ saturations with pulse oximeter.
7. If spontaneous breathing is absent or markedly compromised:
 - Manually open airway.
 - Suction PRN.
 - If unable to maintain airway, insert oropharyngeal or nasopharyngeal airway.
 - Ventilate with BVM @ 20 per minute for a child and 30 per minute for an infant.
 - Monitor O₂ saturations with pulse oximeter.

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8. If patient is unresponsive and unable to maintain an adequate airway or without a pulse, intubate using direct laryngoscopy and appropriate size endotracheal tube. If cervical spine injury is suspected, have second person maintain c-spine control during intubation.
 - Verify tube placement by: auscultation of breath sounds, esophageal detector device, and capnometry.
 - Secure ETT with commercial device.
 - Monitor O₂ saturations with pulse oximeter.
9. Insert NG tube to decompress stomach PRN.
10. Consider needle cricothyrotomy if indicated.

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2.2.2 Asthma - Pediatric Paramedic

Asthma is considered an obstruction of the lower airway. Care should be focused on adequate oxygenation, ventilation and medication administration to improve breathing. Respiratory emergencies are life threatening in the pediatric population, it is critical to be alert for early signs of decompensation.

1. Baseline care standards.
2. Place patient in a position of comfort and reassure the patient.
3. Administer high flow oxygen.
4. Assist with prescribed metered dose inhaler if the patient has one.
5. If wheezing persists administer:
 - *Albuterol 2.5mg in 3cc Normal Saline-* by nebulizer.
 - Patient may receive continuous *Albuterol nebulizer* treatments until breath sounds are clear.
6. If respiratory distress is severe:
 - *Epinephrine 0.01mg/kg of 1:1000 solution SQ. If patient is < 8 years old, 0.15 mg up to a maximum dose of 0.3mg; if patient is > 8 years old, maximum dose is 0.3 – 0.5 mg.*
 - *Solu-Medrol® 2 mg/kg IV over 1 minute up to a maximum dose of 125mg.*
7. Monitor vital signs and airway closely.
8. Consider that a reduced respiratory rate may indicate fatigue and pending respiratory failure. Ventilate and/or intubate as appropriate.
9. Start IV of Normal Saline at a TKO/KVO rate.
10. Transport with the appropriate response.

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2.2.2 Croup and Epiglottitis

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Croup and epiglottitis are upper airway obstructions. Patient care should be focused on adequate oxygenation and ventilation during transport. Respiratory emergencies are life threatening in the pediatric population; it is critical to be alert for early signs of decompensation. Avoid agitating the child with suspected epiglottitis.

1. Baseline care standards.
2. Place patient in position of comfort (upright in parent's lap if possible).
3. Administer high flow oxygen by mask or blow by and monitor O₂ sats (may use humidified oxygen if available).
4. Monitor cardiac rhythm.
5. Focused history and assessment.
Differential Diagnosis:
 - Croup:
 - Viral infection usually in children 6 months to 4 years of age.
 - Mild fever - some hoarseness.
 - Barking "seal bark" cough.
 - Condition worsens at night.
 - Nasal flaring, tracheal tugging and intercostal retractions possible.
 - Restlessness.
 - Pale skin and cyanosis is possible.
 - Epiglottitis:
 - Bacterial infection usually in children 4 years of age and older.
 - Sudden onset of high fever.
 - Painful swallowing (child may be drooling due to difficult swallowing).
 - Child may sit in tripod position in attempt to open airway.
 - Nasal flaring, tracheal tugging, intercostal retractions, and stridor possible.
 - Child may appear to look very ill.
6. Administer:
 - *Nebulized Racemic Epinephrine 0.25ml in 2.5cc Normal Saline < 4yrs of age*
 - *Nebulized Racemic Epinephrine 0.5ml in 2.5cc Normal Saline > 4yrs of age*
 - May consider Albuterol 1.25 mg in 3 ml of saline solution (0.625 mg in 3 ml of saline solution if < 30 kg)
7. Should the patient deteriorate be prepared to assist ventilations with intubation and BVM.

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2.2.2 Croup and Epiglottitis

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8. Consult medical control for needle cricothyrotomy for difficult airway management.
9. **Do not attempt to visualize internal airway in responsive patient.**
10. **Establish IV Normal Saline TKO only in unresponsive patient.**

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2.2.2 Obstructed Airway - Pediatric Paramedic

Causes of upper airway obstruction include the tongue, foreign bodies, swelling, trauma to airway, and infections. Identifying the cause of upper airway obstruction is essential to determining treatment. The treatment goal of the patient that is choking is to relieve the patient of the obstruction, provide adequate oxygenation, provide support and timely transport to the appropriate facility.

1. Baseline care standard.
2. If patient is coughing or moving air, encourage coughing to clear the object.
3. If airway remains obstructed, perform the following for the removal of obstruction:
 - Administer standing abdominal thrusts until dislodged or patient becomes unconscious. (back blows and chest thrusts for infants only).
 - Once unconscious, lay patient supine and continue sequence of looking for the object, attempt to ventilate, CPR, until obstruction is dislodged.
4. If unable to dislodge a foreign body, visualize with laryngoscope and extract foreign body with Magill forceps. Use suction if necessary, to clear airway.
5. Establish airway per Airway Management protocol. If unable to intubate and patient cannot be ventilated by other means, perform cricothyroidotomy.
6. If airway is cleared, administer O₂ 15L per minute via mask.
7. Establish an IV of Normal Saline TKO.
8. Transport with lights and sirens PRN.

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2.2.3 Asystole - Pediatric Paramedic

This protocol must be used in conjunction with other associated protocols: Cardiac Arrest, Baseline Care Standards, and Airway Management protocol. The primary goal is conversion of asystole to another cardiac rhythm; with or without a pulse. Change to another appropriate protocol based on any ECG change. Early recognition, continuous CPR, intubation, and rapid pharmaceutical interventions give the greatest chance of resuscitation.

1. Baseline care standards.
2. Cardiac arrest management per protocol.
3. Manage airway per protocol.
4. Verify asystole in two leads.
5. Administer:
 - *Epinephrine (1:10,000) 0.1mg/kg IV/IO. If unable to establish IV/IO, give 0.1mg/kg via ETT (Max. ETT dose is 2mg). Repeat every 3 – 5 minutes for duration of pulselessness.*
6. Contact medical control to administer:
 - *Sodium Bicarbonate (8.4%) 1 mEq/kg IV/IO.*
7. Early contact to the receiving Emergency Department and Medical control.
8. After 30 minutes of ALS interventions, consider implementing the “Withholding or discontinuing resuscitation” protocol.

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2.2.3 Cardiac Arrest - Pediatric Paramedic

The goal in the cardiac arrest patient is: rapid assessment, rapid intervention by establishing an adequate airway, ongoing CPR, intravenous access, determination of cardiac rhythm, and electrical and drug therapy based on the electrical rhythm. Transport should be started as soon as practical. Treatment needs to be ongoing during all phases of transport. CPR and ventilation may need to be stopped to facilitate some phases of patient transport. These interruptions should be minimized as much as possible by evaluating all phases of patient extrication and transport prior to carrying out the individual steps. Early notification of the receiving emergency department and medical control is necessary. Although individual treatments are listed individually in practical application, many steps are carried out simultaneously when they can be.

1. Baseline care standards.
2. Establish that the patient is pulseless and apneic. Begin CPR.
3. If cardiac arrest was unwitnessed or EMS arrival to the patient is estimated to be more than 5 minutes since the patient went into arrest, complete 2 minutes of CPR prior to defibrillation.
 - During initial administration of CPR, the cardiac monitor should be attached to the patient.
4. If cardiac arrest was witnessed and EMS arrival to the patient is estimated to be less than 5 minutes since the patient went into arrest, confirm electrical rhythm with quick look and treat with appropriate protocol. Apply cardiac monitor when able.
5. After the first and all subsequent defibrillations, immediately begin CPR for 2 minutes.
 - CPR should not be delayed for rhythm or pulse checks unless signs of circulation have returned.
6. Manage airway per protocol.
7. Establish IO access with normal saline TKO.
8. If IO access is delayed, administer drugs by ETT if appropriate.
9. Early contact to the receiving Emergency Department and Medical control.
10. Proceed with protocol based on cardiac rhythm.

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2.2.4 Care of the Newborn Paramedic

Treatment goals for care of the newborn is to protect the infant from injury, ensure oxygenation, perfusion and warmth, provide advanced life support, and immediate transportation of the newborn and mother to the appropriate facility.

1. Baseline care standards.
2. Body Substance Isolation precautions.
3. Deliver baby per protocol.
4. The infant should be assessed continually. Record the assessment findings one minute after birth and again 5 minutes after birth.
5. Never delay life-saving treatment to obtain a score.
6. Use the APGAR score below:

Test	0 Points	1 Point	2 Points
A ctivity (Muscle Tone)	Absent	Arms & legs extended	Active movement with flexed arms & legs
P ulse (Heart Rate)	Absent	Below 100 bpm	Above 100 bpm
G rimace (Response Stimulation or Reflex Irritability)	No Response	Facial grimace	Sneeze, cough, pulls away
A pppearance (Skin Color)	Blue-gray, pale all over	Pink body and blue extremities	Normal over entire body – Completely pink
R espiration (Breathing)	Absent	Slow, irregular	Good, crying

7. For inadequate respiratory effort (slow, shallow, or absent), provide positive–pressure ventilations at a rate of 30 to 60 per minute.
8. For inadequate heart rate of less than 100 per minute, provide positive–pressure ventilations at a rate of 60 per minute.
9. Intubate under the following conditions:
 - BVM ventilations are ineffective.
 - Tracheal suctioning is required. Especially for thick meconium.
 - Prolonged positive pressure ventilation is required.
10. For heart rate of less than 80 beats per minute, follow newborn CPR standards.

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2.2.4 Care of the Newborn Paramedic

11. Reassess. If the heart rate is greater than 100 beats per minute and respirations are adequate, stop CPR and ventilations and give oxygen via blow-by.
12. If cyanosis is present in the infant's trunk, but the infant's breathing and heart rate are adequate, administer oxygen via blow-by.
13. Transport emergent to the appropriate facility.
14. Inform hospital as soon as possible of your patient so they can prepare for arrival.

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2.2.5 Allergic Reaction - Pediatric Paramedic

Treatment goals of the patient with a severe allergic reaction in the pre-hospital environment include treatment of the local and systemic reactions, ensuring adequate oxygenation, administration of medications, and safe timely transport to the appropriate care facility. Be prepared to manage systemic airway complications and anaphylactic shock.

1. Baseline care standards.
2. Maintain a calm approach to both parent and child.
3. Allow the child to assume and maintain a position of comfort or to be held by parent, preferably in an upright position.
4. Administer high concentration of oxygen.
5. Perform orotracheal intubation and advanced airway management on unresponsive patient.
6. If an injection site, treat local reaction with ice.
7. Establish IV access at a TKO rate for normal blood pressure. IV fluid bolus of 20ml/kg for hypotension over 5-20 minutes. Reassess; repeat if necessary.
8. If the patient shows signs of systemic reaction:
 - *Epinephrine 0.01mg/kg of 1:1000 solution (SQ or IM). Repeat as needed every 5-10 minutes **with a maximum of 2 doses.***
 - *Benadryl® 1mg/kg (IV or IM) **up to a maximum dose of 50mg.***

If patient remains in respiratory distress, administer:

- *Albuterol 2.5mg in 3cc Normal Saline- by nebulizer.*

If respiratory distress is severe, administer:

- *Solu-Medrol® 2 mg/kg IV over 1 minute **up to a maximum dose of 125mg***

****May consider *Epinephrine infusion 0.001mg/kg/minute* titrate for effect for anaphylaxis refractory to (SQ/IM) Epinephrine and Benadryl - see infusion chart.**

9. Treat for shock and be prepared to initiate CPR and PALS as necessary during transport.

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2.2.5 Altered Mental Status - Pediatric Paramedic

Altered mental status may be caused by neurological trauma, overdose, poisoning, hypoglycemia, decreased oxygenation, or other illness. Treatment goals of the patient with an altered mental status in the pre-hospital environment include insuring responder safety, assessing for treatable causes, assuring adequate airway control and oxygenation, advanced life support when indicated, and safe timely transport to the appropriate care facility.

1. Baseline care standards.
2. Manage airway per protocol.
3. Assess level of consciousness using AVPU.
4. Administer oxygen 15L per minute via non-rebreather.
5. Obtain focused history and physical exam of environment for clues.
6. Obtain blood glucose level. Follow diabetic emergency protocol for treatment as needed.
7. Monitor cardiac rhythm. Treat dysrhythmias according to protocol.
8. Wear facial PPE for any signs of fever or rash with altered mental status.
9. Provide appropriate trauma care as necessary.
10. Establish IV of Normal Saline at TKO rate.
11. If signs of shock, give Normal Saline bolus 20 ml / kg.
12. If opiate overdose is suspected administer:
 - *Narcan 0.05 - 0.1 mg / kg IV. May repeat every 5 minutes x 2.*

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2.2.5 Diabetic Emergencies - Pediatric Paramedic

Glucose, a form of sugar, is the body's basic source of energy. An abnormal blood sugar level has an effect on all organs including the heart and the brain. Returning to normal perfusion as quickly as possible is the ultimate goal.

Conscious patient – low blood sugar

Children with diabetes are at risk for a low blood sugar emergency as their activity levels may exhaust blood sugar levels.

1. Baseline care standards.
2. Administer high flow oxygen.
3. Obtain blood glucose level. If blood glucose is < 60mg/dl then;
4. Establish IV and:
 - For children 10 to 80 pounds (3kg-37kg). Administer *Dextrose 25% at 2ml/kg IV* (mix 25ml of D50 with 25ml of Normal Saline).
 - For Children over 80 pounds treat as adult. Administer *Dextrose 50% at 2ml/kg IV*.
5. If the child is wearing an insulin pump, turn it off.
 - Administration of glucose should not be delayed to turn off the pump.
6. If unable to establish an IV, administer *Glucagon 0.1mg/kg IM*. **Max dose is 1mg.**
7. When mental status has returned to normal, the patient should be strongly encouraged to eat a carbohydrate snack.

Conscious patient – high blood sugar

It is uncommon for an ambulance to be dispatched for a child with a high blood sugar as most parents would have sought care for their child previously as this is a slow onset illness. However, it is possible in a new onset of juvenile diabetes or in the case of a child with a history of diabetes who has been ill for a few days.

1. Baseline care standards.
2. Administer high flow oxygen.
3. Obtain blood glucose level.

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4. Establish IV:
 - IV fluid bolus of 20ml/kg over 30-60 minutes for blood glucose levels above 300 mg/dl
 - TKO/KVO if glucose level is below 300mg/dl.
5. If the child is wearing an insulin pump leave it on.
6. Transport in the recovery position.
7. If patient is altered and you are unable to determine by blood sample or history, treat as low.

Unconscious Patient

Patients that are unconscious should never have anything by mouth.

1. Baseline care standards.
2. Administer high flow oxygen.
3. Obtain blood glucose level.
4. **Hypoglycemic** - Establish IV and:
 - For children 10 to 80 pounds (3kg-37kg). Administer *Dextrose 25% at 2ml/kg IV* (mix 25ml of D50 with 25ml of Normal Saline).
 - For Children over 80 pounds treat as adult. Administer *Dextrose 50% at 2ml/kg IV*.
5. **Hyperglycemic-**
 - IV fluid bolus of 20ml/kg over 30-60 minutes for blood glucose levels above 300 mg/dl.
 - TKO/KVO if glucose level is below 300mg/dl.
6. If the child is wearing an insulin pump and is hypoglycemic, turn it off.
7. Transport in the recovery position.
8. Monitor airway and vital signs closely.
9. If not transporting, ensure that the patient has eaten a carbohydrate snack.

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2.2.5 Poisoning or Overdose - Pediatric Paramedic

This protocol will address common poisoning or overdose treatments. If you are unsure of the overdose or exposure, treat the symptoms as they present. If you are unable to rule out trauma, follow the Baseline Trauma Care Standards. Rapid assessment and support of airway, ventilation, oxygenation, and circulation are paramount in toxicological emergencies. Physical signs such as pupil size and response to light, skin color and temperature, seizure activity, and heart rate may have a particular value and diagnostic significance to the patient with a toxic exposure.

1. Baseline Care Standards.
2. Maintain airway per Airway Management protocol.
3. Establish IV Normal Saline TKO PRN.
4. Monitor ECG and O₂ saturations.
5. Try to find the source of the poisoning or overdose; ask patient, bystanders, search for pill bottles, etc.
6. Call poison control **1-800-222-1222**.
7. If the patient is cooperative, maintaining an airway, and not mentally altered administer:
 - *Activated Charcoal 1 gm/kg PO.*
8. Perform blood glucose test. If glucose is <60 mg/dl, go to Diabetic Emergencies protocol.
9. If QRS complex is wide (> 0.12 seconds) administer:
 - *Sodium Bicarbonate 1mEq/kg IV.*
10. If patient has depressed respirations administer:
 - *Narcan® 0.1mg/kg IV.*
11. If patient is seizing, go to Seizure protocol.
12. If hypotensive, give fluid challenge of 20 ml/kg.
13. If combative, restrain patient per protocol.

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2.2.5 Seizures - Pediatric

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This protocol should be used when the patient has had continuous convulsions or repeating episodes without regaining consciousness or respiratory decompensation. Seizures may be caused by epilepsy, infections, poisoning, hypoglycemia, trauma, or decreased levels of oxygen. Care should be focused at maintaining an open airway, adequate oxygenation, protection and treatment of injury, and supporting the return to normal mental status.

1. Baseline care standards.
2. Airway management per protocol.
3. Establish IV Normal Saline TKO. Draw blood sample prior to infusing fluids.
4. Administer:
 - *Diazepam 0.5mg/kg IV (10mg max. dose). If unable to start IV, administer Diazepam 0.5 mg/kg PR (10mg max. dose). Or,*
 - *Lorazepam 0.1mg/kg IV. Or,*
 - *Midazolam 0.1mg/kg IV (2mg max. dose).*
5. Perform blood glucose test. If glucose is < 60mg/dL, administer:
 - For children 10 to 80 pounds (3kg-37kg). Administer *Dextrose 25% at 2ml/kg IV* (mix 25ml of D50 with 25ml of Normal Saline).
 - For Children over 80 pounds treat as adult. Administer *Dextrose 50% at 2ml/kg IV.*
 - If unable to establish an IV, administer *Glucagon 0.1mg/kg IM. Max dose is 1mg.*
6. Gather and transport medications.

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2.2.6 Frostbite

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Frostbite can occur in three levels of severity:

- A. First degree: Presents itself as numbed skin that may turn white in color and waxy in appearance. The skin may feel stiff to the touch, but the tissue under is still warm and soft.
- B. Second degree: The skin will be white or blue and will feel hard and frozen. Blistering and edema are likely. Second degree frostbite is a serious medical condition.
- C. Third degree: The skin is white, blotchy, and/or blue. The tissue underneath is hard and cold to the touch. The tissue underneath has been damaged and blistering is inevitable.

1. Baseline care standards.
2. Remove patient from cold environment and place patient in warm, dry place. Remove wet clothing. Dry patient and cover with dry linen to protect from further heat loss.
3. Check core temperature.
 - If core temperature is $< 35^{\circ}\text{C}$, refer to Hypothermia protocol.
4. Administer O_2 15L per minute via mask. Use warmed humidified O_2 if available.
5. Remove jewelry, gloves, shoes, and other restrictive objects.
6. Monitor ECG.
7. Attend to injured areas:
 - Protect from pressure, trauma, and friction.
 - Do not rub or massage.
 - Do not allow limb to thaw if there is a chance it will refreeze.
 - Do not allow patient to ambulate once the limb has started to thaw.
 - Consider warming in warm water, make sure temp stays constant.
 - Continue until distal tip of injured extremity flushes.
 - Dry and wrap affected area with dry sterile dressings.
8. DO NOT rapidly rewarm.
9. Use a pulse oximeter probe to detect peripheral perfusion in affected tissues.
10. Establish IV access in unaffected limb.

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11. For pain control, if patient is hemodynamically stable administer:
 - *Morphine Sulfate 0.1mg/kg IV for pediatric, 0.5mg/kg for infant.* Repeat PRN. Max. dose of 10mg.
12. Transport to nearest appropriate hospital.

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2.2.6 Hypothermia - Pediatric Paramedic

Hypothermia is generally defined into three categories: Mild hypothermia: temperatures between 93.2°F (34°C) and 98.6°F (37°C), Moderate hypothermia: temperatures between 86°F (30°C) and 93.2°F (34°C), Severe hypothermia: temperatures below 86°F (30°C). Mild to moderate hypothermia patients will present with shivering, lethargy, and stiff, uncoordinated muscles. Severe hypothermia patients may be disoriented and confused, stuporous, or unresponsive. Shivering will typically be absent and physical activity will be uncoordinated. Severe hypothermia will frequently produce dysrhythmias.

1. Baseline care standards.
2. Remove wet garments and gently dry patient.
3. Protect against further heat-loss and wind-chill.
4. Maintain horizontal position.
5. Avoid rough movement and excess activity.
6. Monitor core temperature.
7. Monitor cardiac rhythm.
8. Treat major trauma as the first priority and hypothermia as the second.
9. If pulse/breathing are absent:
 - Start CPR.
 - Defibrillate ventricular fibrillation/ventricular tachycardia with up to a total of 3 shocks (2 j/kg, 4 j/kg, and 4 j/kg or equivalent biphasic defibrillation)
 - Intubate per airway protocol.
 - Establish IV of warm Normal Saline.
10. If core temperature <30°C (86°F):
 - Continue CPR.
 - Withhold IV medications.
 - Limit shocks to a maximum of 3.
11. If core temperature >30°C (86°F):
 - Continue CPR.
 - Give IV medications based on dysrhythmia (but at longer intervals.)
 - Repeat defibrillation for ventricular fibrillation/ventricular tachycardia as core temperature rises.

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12. If pulse/breathing are present:

- Initiate IV of warm Normal Saline.

13. Check blood sugar, if glucose < 80 mg/dl, give:

- 0.5 gm/kg of Dextrose 25% (mix 25ml of D50 with 25ml of Normal Saline).

14. Begin external re-warming.

15. Insert Foley and NG tube for long transports.

16. Transport with lights and sirens.

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2.2.6 Near Drowning - Pediatric Paramedic

Near drowning patients may or may not be conscious. Regardless of how well a patient has seemed to recover, all near drowning patients must be transported to the hospital. Delayed death or complications due to pulmonary edema or aspiration pneumonia may occur.

1. Baseline care standards.
2. If trauma is suspected, take full cervical spine precautions and immobilize patient.
3. Protect patient from hypothermia.
4. Administer O₂ 15L per minute via mask.
5. Attach cardiac monitor and pulse oximeter.
6. Initiate IV Normal Saline TKO.
7. Manage airway per protocol.
8. If patient's systolic blood pressure is $< 80 \text{ mmHG} + (\text{years in age} \times 2)$:
 - Elevate legs.
 - Administer 20 ml/kg fluid bolus. Repeat to maintain systolic BP $>90 \text{ mmHg}$.
9. Treat dysrhythmias per protocol.
10. Place NG tube to low suction.
11. Contact medical control for further orders.
12. Transport to the nearest appropriate hospital.

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2.2.7 Trauma Baseline Care Standards - Pediatric Paramedic

The following actions will be taken on each ambulance trauma call. Once a specific patient condition is determined by the EMS provider, he or she will treat that condition according to specific protocols.

1. Scene Size-up

- Review the dispatch information.
- BSI PRN.
- Make sure scene is safe.
- Determine mechanism of injury.
- Determine number and location of patients.
- Request additional resources if needed.

2. Primary Assessment

- The primary care provider must conduct a primary assessment for each patient to determine any life-threatening injuries or conditions. Any life-threatening conditions must be addressed immediately per specific protocol. Call for trauma code as soon as possible PRN (see trauma transport scheme below).
- Airway, oxygen therapy, and breathing as per the Airway Management protocol. (Manually stabilize C-spine PRN).
- Treat any massive flail segment that causes respiratory compromise.
- Treat tension pneumothorax per protocol.
- Control hemorrhage.

3. Secondary Assessment

- A detailed secondary assessment must be performed after the primary assessment is complete and any life-threatening conditions are addressed.
- Apply C-Collar and fully immobilize the spine on backboard or pediatric immobilizer PRN.
 - Infants and small children in car seats may be immobilized without removing them from the car seat, as long as it will not interfere with patient assessment or other procedures, and the car seat is intact. If patient has been removed from car seat, do not put patient back into car seat to immobilize.
- Establish an IV of Normal Saline. If hypotensive, infuse 20ml/kg bolus. Repeat PRN.
- Monitor ECG and O₂ saturations.
- Apply traction splint for femur fracture.
- Splint other extremity fractures in position of comfort. Consult with medical control if distal CMS deficits are noted.
- At least two sets of vital signs must be recorded or vital signs every 15 minutes. If the patient is unstable, vital signs must be recorded every 5 minutes. Vital signs include:
 - Mental Status (AVPU).
 - Blood Pressure
 - Pulse
 - Respiration

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2.2.7 Trauma Baseline Care Standards - Pediatric Paramedic

- Circulation/Motor/Sensory (CMS) in all four extremities.
- Glasgow Coma Scale (GCS).
- Treat specific conditions according to protocol.
- If patient is unstable call for helicopter transport if available.
- Transport and trauma team activation per decision scheme below:

A patient with any one of the following criteria must be transported to a trauma designated hospital and a trauma code must be activated.

Glasgow Coma Scale.....<14
Systolic Blood Pressure.....<90
Respiratory Rate..... <10 or > 29

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee
- Flail Chest
- Combination trauma with burns
- Two or more long-bone fractures
- Amputation proximal to wrist and ankle
- Pelvic Fractures
- Open or depressed skull fractures
- Paralysis
- Major Burns

A patient with any one or more of the following criteria must be transported to a trauma designated hospital and a trauma code may be activated at the discretion of the EMS provider.

- Ejection from an automobile
- Death in the same passenger compartment
- High speed auto crash, with initial speed > 40mph, major auto deformity >20 inches, and intrusion into passenger compartment > 12 inches
- Auto-pedestrian/auto-bicycle with significant impact (>5 mph)
- Pedestrian thrown or run over
- Motorcycle crash > 20mps or rider separated from bike
- Falls > 20 feet
- Rollover
- Extrication time > 20 minutes
- Age <5 or >55
- Cardiac Disease or Respiratory Disease
- Insulin-Dependant Diabetes, cirrhosis, or morbid obesity
- Pregnancy
- Immunosuppressed patients
- Patients with bleeding disorders or on anticoagulants.

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2.2.7 Burns - Pediatric

Paramedic

Burns can be caused by thermal, chemical, and electrical sources. Burn patients are volume depleted, however, they do not bleed. Therefore, look for other sources of bleeding. Many burn injuries are associated with respiratory burns that may not be obvious. The signs and symptoms of respiratory burns include: burns about the nose and face, charring in the mouth, blackened (sooty) sputum, singed nasal or facial hair, abnormal breath sounds (stridor, rhonchi, and wheezing), and respiratory distress. In cases of respiratory burns, attention should be given to the patency of the airway. Acute swelling can cause an airway obstruction. Consider early intubation to avoid a complete airway obstruction.

Burns pose a greater risk to infants and children. This is because their body surface area is greater in relation to their total body size. This results in greater fluid and heat loss than a normal adult.

1. Baseline care standards.
2. Extinguish any flames on patient and remove smoldering clothing and any constricting clothing or jewelry.
3. Remove patient from harmful environment and limit injury:
 - Chemical: Flush with water or normal saline. Brush off dry chemicals.
 - Tar: Cool with water or normal saline (do not attempt to remove tar).
 - Electrical: Remove from contact with current source if equipped to do so. (Note any secondary fractures and exit wounds caused by current).
4. Allow child to be near parent. Make sure parents do not become contaminated.
5. Administer oxygen at 15L per minute via mask. Continually reassess the airway. Children's airways are smaller and shorter, making them more likely to be affected by swelling. If respiratory distress or airway burns exist, consider intubation.
6. Do not apply any type of ointment, lotion, or antiseptic to burns.
7. If there are 2nd or 3rd degree burns of less than 20% body surface area:
 - Apply wet sterile dressings to burned area.
 - Be careful not to cause hypothermia.
 - IV Lactated Ringer's TKO.
8. If significant 2nd or 3rd degree burns of equal to or greater than 20% body surface area:
 - Cover burns with dry sterile dressings.
 - Establish two large bore IVs of Lactated Ringer's.

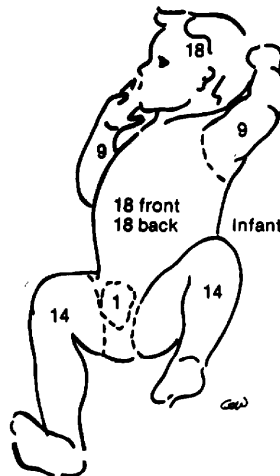
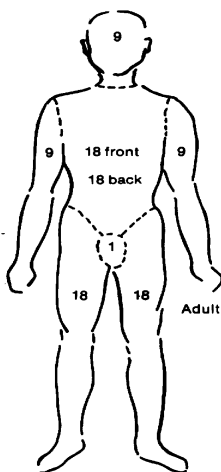
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2.2.7 Burns - Pediatric

Paramedic

- For ongoing care administer IV fluids using the Parkland Formula ($4\text{ml} \times \text{Pt's weight (kg)} \times \% \text{BSA}$):
 - i. Give $\frac{1}{2}$ in the first 8 hours post-burn
 - ii. Give $\frac{1}{4}$ in the second 8 hours
 - iii. Give $\frac{1}{4}$ in the third 8 hours
 - Consider *Morphine 2-5 mg IV*. May repeat in five minutes to a maximum of 15 mg.
9. If the patient has an altered level of consciousness and / or signs of head injury (consider carbon monoxide poisoning if closed space burn):
- Immobilize cervical spine when appropriate.
 - IV Lactated Ringer's TKO.
10. Transport patient on sterile dry burn sheets.
11. Consider Foley catheter insertion.
12. Monitor urine output. If output drops to less than 1.0 ml/kg/hour, increase the IV fluids to maintain urine output at these levels.
13. To estimate percent of body surface area injured, use the "Rule of Palm." The patient's palm size equals approximately 1 percent of the body surface area.
14. Contact medical control for any questions or problems.

Rule of Nines



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2.2.7 Eye Injuries- Pediatric Paramedic

This protocol covers a wide variety of injuries to the eye. If other injuries to the body exist, priority of care should be given as appropriate.

1. Baseline Care Standards
2. Maintain airway per protocol.
3. Control all bleeding.
4. Remove contact lenses.
5. Irrigate eyes with copious amounts of water.
6. Cover both eyes to minimize movement of injured eye.
7. Leave penetrating objects in and immobilize them with dressings. Consider use of rigid cervical collar and long board.
8. Pain management per protocol.
9. Reassure patient. Keep patient calm.
10. Transport to appropriate facility.

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2.2.7 Heat Emergencies - Pediatric Paramedic

Heat injuries are categorized in three areas. **Heat cramps** are associated with muscular cramps and aches, usually in abdomen, arms, or legs. **Heat Exhaustion** occurs with excess sweating. Typically other symptoms include; nausea, vomiting, fatigue, weakness, muscle cramps, and/or dizziness. **Heat Stroke** is a true medical emergency. Signs and symptoms may include those listed for heat cramps and heat exhaustion, with the addition of; headache, altered mental status, lethargy, seizures, hot dry or moist skin, hyperthermia, loss of consciousness, increased heart rate, and hallucinations.

1. Baseline care standards.
2. Administer oxygen at 15L per minute via non-rebreather mask.
3. Maintain airway per protocol.
4. Start large bore IV of Normal Saline at a TKO rate. Administer fluid bolus of 20mL/kg to maintain blood pressure
5. Place patient in supine position with legs slightly elevated.
6. Assess vital signs, including temperature every 10 minutes.
7. Loosen or remove excess and constrictive clothing.
8. If heat exhaustion or heat stroke is suspected:
 - Move patient to cooler environment.
 - Cool with fine water misting spray (must have good ambient air flow).
 - Stop cooling measures when core body temp is 39° C.
9. If seizures are present, and suspected to be heat-related:
 - Protect airway per protocol.
 - Administer *Lorazepam 1 – 2mg IV*, or
 - *Diazepam 2 - 10 mg IV*.
10. For hypotension refractory to cooling and fluid boluses administer:
 - Dopamine infusion at 5 – 20 mcg/kg/minute. Titrate infusion to maintain systolic BP greater than 90 mmHg.
11. Consider placing NG tube to protect airway from aspiration.
12. Consider Foley catheter to monitor urine output.

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Date